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Functional Planning Study
Route 11 Janeville to Tracadie

FOR:

NEW BRUNSWICK DEPARTMENT OF TRANSPORTATION

New Nouveau-Brunswick

BY:

ROY CONSULTANTS

INGENIEURS-CONSEILS · CONSULTING ENGINEERS

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SEPTEMBER 1991

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ROY CONSULTANTS
INGENIEURS CONSEILS • CONSULTING ENGINEERS

Tél.: 506.546.4484
Fax: 506.548.2207

September 24, 1991

Your File No.: 163-88
Our File No.: 115-91

Mr. Brian McEwing, P.Eng.
Assistant Director, Planning
Department of Transportation
P.O. Box 6000
Fredericton, N.B.
E3B 5H1

RE: Phase I Functional Planning, Route 11 Janeville to Tracadie

Dear Mr. Ewing:

We are pleased to present you our proposal for the study of Phase I Functional Planning of Route 11 Janeville to Tracadie.

We feel that we can successfully complete this project because of the following:

(a) we are very familiar with the area to be studied having completed many engineering projects and studies in the Peninsula,

(b) we worked on projects involving constraint mapping, highway planning and environmental engineering,

(c) we have assembled a competent team of professionals for this project.

We are available at your convenience to further discuss this proposal.

Yours truly,

Jean-Jacques Roy, P.Eng.

JJR/lr
Encl.

Casier postal P.O. Box 184, 548 King, Bathurst, N.-B., E2A 3Z2

- PROPOSAL -

Phase I Functional Planning Study
Route 11 Janeville to Tracadie

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1.0 INTRODUCTION

The Department of Transportation has identified the need to conduct a Phase I Functional Planning Study for Route 11 between the communities of Janeville and Tracadie.

The objective of this study is to identify an improved highway corridor to enhance economic activity between major centres from inside the Acadian Peninsula to centres outside the Peninsula. This access controlled highway corridor would therefore link the east end of the Janeville Bypass to the north end of the proposed Tracadie-Sheila Bypass. The project will also include a study of the existing highway network within the Acadian Peninsula.

The different components of our proposal are outlined in the following sections and are based on the terms of reference set out by the New Brunswick Department of Transportation (N.B.D.O.T.) August 21, 1991.

2.0 METHODOLOGY

2.1 Introduction

This section describes our methodology to complete this study on time and on budget. We have divided the project into eight (8) main activities as such:

2.2 Set-up

Our schedule is based on having the present proposal approved by October 4, 1991.

This section would include:

- obtaining relevant mapping, aerial photos and other cartography material.
- gathering data mainly from the Department of Transportation in order to study the existing highway network.
- taking roadway site measurements to supplement the required data.
- 1:50 000 base mapping of the whole Peninsula in preparation for the constraint mapping required for identifying the preliminary bypass corridors.

It is to be noted that Roy Consultants is presently compiling data from an origin-destination (O/D) site survey done in August, 1991 in the Acadian Peninsula. The N.B.D.O.T. will then complete the O/D study using SPSSPC software package. The results of this O/D study will be part of the data required to assess the existing highway network.

If it becomes evident that the present traffic volume statistics are not sufficient to properly analyse the highway network, it may be necessary to have more traffic measurements performed on site.

2.3 Assessment of Existing Highway Network

This phase of the project is to study the existing highway network within the Peninsula using the data and information obtained in the initial set-up stage in order to assess the present condition and evaluate its future condition.

For this, we would determine:

- travel patterns using the O/D survey
- A.A.D.T.
- vehicle classification
- level of service
- travel time
- accident rates
- potential hazardous locations along Route 11
- assessment of geometric and structural conditions
- highway sufficiency ratings
- roadway inventory
- index of development per kilometre of roadside frontage

Some mapping will also be worked on during this phase.

2.4 Meetings and Consultations

Meetings and consultations will be held at different stages of the study with more emphasis put on the period prior to proposing the preliminary bypass corridor(s). We propose to have these with three different groups:

a) The N.B.D.O.T. Technical Steering Committee in order to assure that the guidelines established are followed. Meetings will be held at the following time schedule:

1. for the presentation of this proposal.
2. after the input from regional authorities.
3. after completing the constraint mapping.
4. for the presentation of the Executive Summary Report.
5. at any other time as deemed necessary.

b) Other government departments and agencies such as Environment, Natural Resources, N.B. Power, etc... in order to establish the constraint mapping. N.B.D.O.T. is to provide Roy Consultants a list of individual contacts.

c) Regional authorities within the Acadian Peninsula to obtain local input, including:

1. Technical and the board of direction of the C.A.P.A. "Commission d'Aménagement de la Péninsule Acadienne" (Acadian Peninsula Planning Commission).
2. C.E.E.P. "Commission d'Expansion Économique de la Péninsule" (Peninsula Economic Expansion Commission).
3. The Association of Mayors of the Peninsula.
4. The municipalities through civic administrators for technical input.

It is to be noted that contacts with regional authorities (group representatives and/or technical staff) will be informal and low key in nature. A record of all meetings will be kept. The Chairman of the N.B.D.O.T. Technical Steering Committee will be notified of any meetings involving potentially sensitive issues.

2.5 Environmental and Land Use Considerations

Potential environmental constraints and impacts will be identified by our environmental personnel after consultations with the Department of Environment and other associated departments.

Constraint mapping will be done on 1:50 000 mapping for the purpose of identifying preliminary bypass corridors and on 1:10 000 mapping when evaluation more closely the new alignment options.

Environmental considerations will be given at:

- watercourse crossings and alterations
- navigable waters requirements
- plant communities including rare endangered and sensitive species
- wildlife areas including significant habitat and migratory routes
- groundwater resources
- community water supplies including designated watersheds
- aquatic resources including fish, fish habitat, aquaculture and other sensitive resources
- wetlands
- known and potential heritage resources (archaeological and historic)
- sensitive agricultural areas
- unique landform
- ecological reserves including those proposed
- designated recreational areas including those proposed
- solid waste disposal sites including those proposed
- sewage treatment areas
- mining areas

2.6 Identification of Corridor Options

Firstly, preliminary bypass corridors will be identified on a 1:50 000 mapping. This will only be done after the constraint mapping has been largely completed, travel patterns has been identified based on traffic studies and sufficient input from regional authorities has been gathered.

Afterwards, the corridor options will be more closely evaluated on a 1:10 000 scale where constraint mapping would be more complete than at a 1:50 000 scale (i.e. displaying property lines). The route proposals shall also include the treatment of proposed interchanges and access roads.

Detailed functional plans at a 1:2000 scale will also be prepared for areas of specific constraints in order to ascertain the feasibility of constructing the structures and concepts developed previously at a 1:10 000 scale mapping.

The corridor width will not exceed one (1) kilometre.

2.7 Evaluation of Potential Alternatives

Once the corridor options have physically been identified, each will be evaluated in order to select the optimum corridor. This will best be achieved by:

- forecasting future travel demand on a link by link basis along the new (or upgraded) highway corridors,
- indicating the expected traffic volume impact on the existing highway network (traffic diversion),
- identifying on a route segment basis the forecasted year in which the construction of each segment of new or upgraded route would be warranted, that is, when the existing route would exhibit a level of service D,

- identifying the physical constraints which would cause difficulty in constructing the upgraded or new highway,
- identifying the areas susceptible to environmental damage and determining the actions to take in order to minimize the effects to an acceptable level.

These are items which can be quantified or physically identified.

2.8 Assessment and Cost Estimate

The different options selected will be rated according to their benefits and cost. Benefits shall be evaluated on:

- potential construction problems pertaining to constraints and logistics,
- social and environmental consequences and enhancement opportunities,
- residential, social, institutional and commercial displacement,
- future transportation potential,
- enhancement of economic activities between major centres within the Acadian Peninsula and to centres outside the Peninsula,
- accident rating on the existing and new highway network,
- achieving level of service desired in relation to the construction phasing strategy.

The total highway construction cost will be estimated for each option including land reclamation. Cost estimates will also be calculated for segments and interchanges for different construction phasing scenarios. This would enable to evaluate the benefits and costs in order to define the optimum scenario.

2.9 Reports

The result of the study will be the selection of the optimum corridor between the east end of the Janeville Bypass and the north end of the proposed Tracadie-Sheila Bypass.

As requested, we plan to submit an executive summary report to the N.B.D.O.T. Technical Steering Committee by February 28, 1992. This short report will outline the basic methodology, findings and recommendations of the study and contain 1:50 000 mapping. After N.B.D.O.T.'s review and approval, we will then prepare as required copies in both French and English.

A draft copy of the final report would be presented by March 31, 1992. After N.B.D.O.T.'s review and approval, we will then prepare five (5) copies in English only. This final report will contain more general data, technical and analytical information; also included will be one (1) plastic original of each area map at a 1:10 000 scale and one (1) plastic of each 1:2000 scale area maps.

3.0 PERSONNEL

The following key team members are identified for the proposed bypass study. This section illustrates a brief description of the work which will be done by each member of the team and their relevant experience. A detailed curriculum vitae of each members is included under Section 6 of this proposal. All members are fluently bilingual.

J.J. ROY, P.ENG. - REGIONAL INPUT

Mr. Roy, a principal in the firm of Roy Consultants, will asist in obtaining input from regional authorities mainly with the Association of Mayors in the Acadian Peninsula and the Board of Direction of the C.A.P.A. and the C.E.E.P.

During the past 20 years, Mr. Roy has been associated with engineering projects in New Brunswick. A native of northeastern N.B. and having been involved in numerous projects in the Acadian Peninsula, Mr. Roy is very familiar with the area as well as the regional authorities. He also has first hand knowledge of the different socio-economic aspects of the Peninsula which would be very useful in a project such as this one.

GÉRALD LAVIGNE, P.ENG. - PROJECT ENGINEER

Mr. LaVigne will be supervising and coordinating the study while performing engineering at all phases of the project. He will attend all the meetings with the N.B.D.O.T. Technical Steering Committee.

A native of northeastern N.B., he is also quite familiar with the area to be studied.

Having been the project engineer managing the Phase II Planning of the Tracadie-Sheila Bypass in 1990-91, Mr. LaVigne has experience in the planning of highways and more particularly so in the area of this proposed study. He was also involved with the Origin-Destination traffic study done in the Peninsula during August 1991.

He has some experience in highway engineering and formerly taught courses in this field at the New Brunswick Community College.

Mr. LaVigne is also familiar with the personnel he'll be dealing with at N.B.D.O.T. as well as the other government departments and agencies.

GÉRALD DUBÉ, P.ENG. - ENGINEER

Mr. Dubé, an engineer with the firm of Roy Consultants, will be assisting in the highway engineering and traffic analysis during the major part of the study.

In recent years, he was involved in the study for a proposed sanitary landfill site in the Acadian Peninsula and is quite familiar with the area. This project thus allowed him to familiarize himself with the Peninsula, the constraints in the area and a number of regional authorities.

Mr. Dubé has also undertaken the design of streets and roads as part of several municipal projects.

ALAN GREGORY, M. SC. - ENVIRONMENT

Mr. Gregory will be in charge of the environmental aspects of this project.

Mr. Gregory is Head of Environmental Services for Roy Consultants and is currently the Manager of our firm's Fredericton office. He was previously employed a number of years with the provincial Department of Environment and is quite familiar with the regulations pertaining to the environment.

The above mentioned professionals will also be able to call upon other professionals and staff supplied by Roy Consultants, Geomacadie and any other firm as deemed necessary.

Geomacadie is a newly formed firm associated with Roy Consultants and specializes in legal surveying and cartography.

4.0 SCHEDULE

4.1 Introduction

The following section outlines the activities required to successfully complete this study including a project schedule.

Our schedule has been prepared based on having this submitted proposal approved by October 4, 1991.

4.2 List of Activities

Following is a list of the activities which has to be done to complete the study:

1. Set-up
   - a) familiarize personnel with project requirements
   - b) gather mapping, cartography, aerial photos, ... from government agencies
   - c) gather data:
     - · demographic information
     - · traffic volume statistics
     - · O/D studies
     - · accident rates
     - · other inventory information
     - · site measurements
   - d) do base mapping 1:50 000 of the whole Peninsula

2. Assessment of Existing Highway Network

a) determine / calculate:

- travel patterns using O/D survey
- A.A.D.T.
- vehicle classification
- level of service
- travel time
- accident rates
- potential hazardous locations along route 11
- other transportation modes

b) analyse existing highway network:

- assessment of geometric conditions
- assessment of structural conditions
- highway sufficiency ratings
- roadway inventory
- index of development per kilometre of roadside frontage

c) graphic representation and mapping

3. Meetings and Consultations

a) with N.B.D.O.T. Technical Steering Committee

- for the presentation of this proposal (Sept. 25, 1991)
- after the input from regional authorities (c to f below)
- after completing the constraint mapping
- for the presentation of the Executive Summary Report

b) with other government departments and agencies to determine constraints

c) C.A.P.A. (Commission d'Aménagement de la Péninsule Acadienne)

- at the level of direction
- at technical level

d) C.E.E.P. (Commission d'Expansion Économique de la Péninsule)
   - at the level of direction
   - at technical level

e) with municipalities (technical level)

f) with the Association of Mayors (level of direction)

g) with N.B.D.O.T. District 12 office

4. Environmental and Land Use Considerations
   - watercourse crossings and alterations
   - navigable waters requirements
   - plant communities including rare endangered and sensitive species
   - wildlife including significant habitat and migratory routes
   - groundwater resources
   - community water supplies including designated watersheds
   - aquatic resources including fish, fish habitat, aquaculture and other sensitive resources
   - wetlands
   - known and potential heritage resources (archaelogical and historic)
   - sensitive agricultural areas
   - unique landform
   - ecological reserves including those proposed
   - designated recreational areas including those proposed
   - solid waste disposal sites including those proposed
   - sewage treatment areas
   - mining areas

5. Identification of Corridor Options

   a) complete constraint mapping 1:50 000 scale

   b) establish preliminary bypass corridors (1:50 000)

c) do mapping at 1:10 000 scale at approved preliminary bypass corridors including:

- constraint mapping
- existing highway network
- terminals for other transportation modes
- existing and planned developments
- topography
- ownership boundaries and municipal zoning
- route proposals including interchanges & access roads
- significant watercourse structures
- identify utility corridors (fibre optics, power and communication transmission lines)

d) do closer mapping at 1:2000 scale of areas of significant development and specific design constraint identified at 1:10 000 scale

e) evaluate and rank the new alignment options

6. Evaluation of Potential Alternatives

- forecast future travel demand on a link by link basis along
  - (1) new highway corridors
  - (2) upgraded highway corridors
- indicate expected traffic volume impact on existing highway network
- identify on route segment basis the forecasted year in which each segment would warrant construction (L.O.S. = D for existing network)
- consult regional plans to determine:
  - land capability and use in study area
  - any planned future development
  - trip generators

7. Assessment and Cost Estimate.

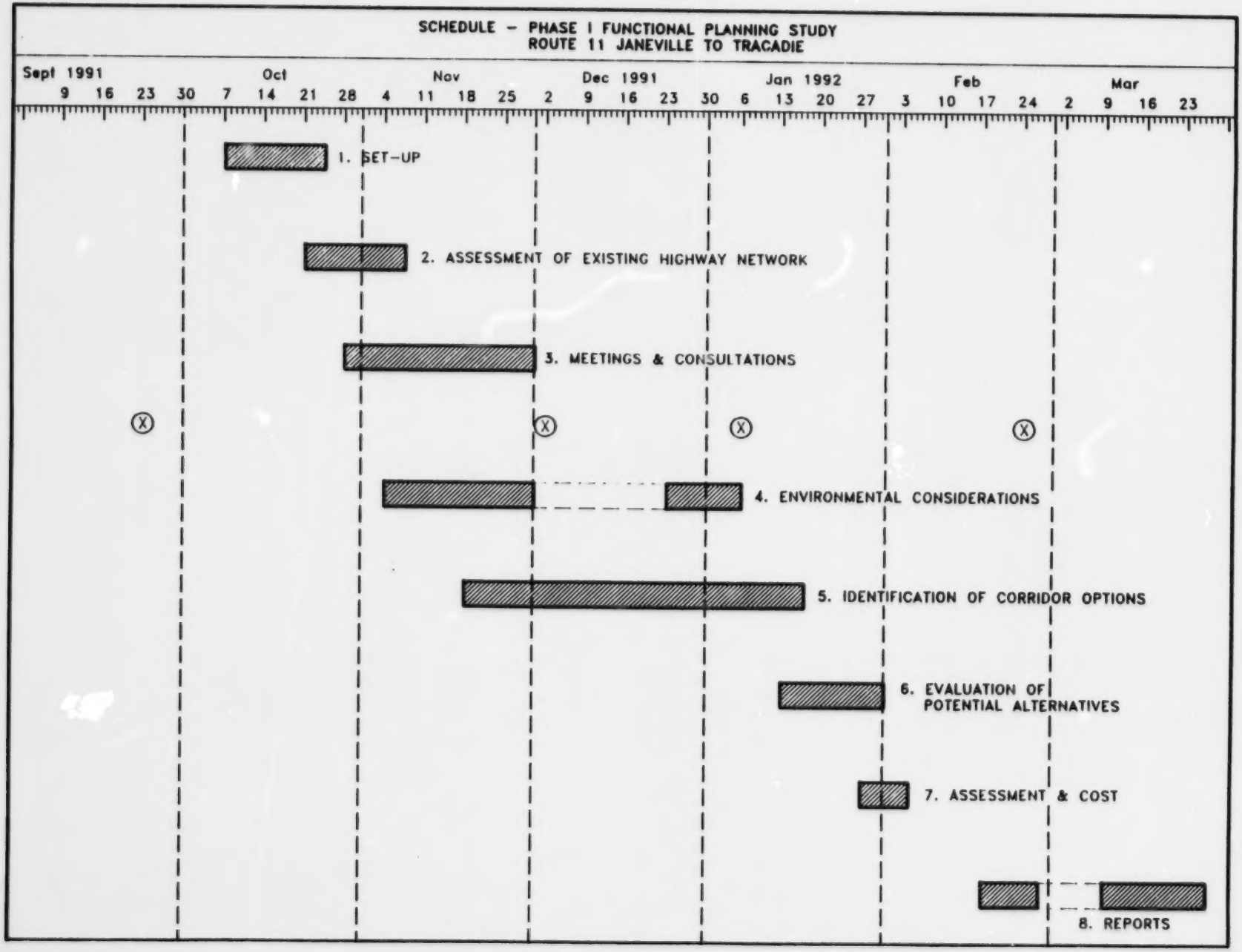
- identify:
  - potential construction problems pertaining to constraints and logistics
  - environmental problems and enhancement opportunities
  - residential, social, institutional and commercial displacement
  - future transportation potential
- calculate the total highway construction cost for each option
- determine the effect of highway construction phasing for segments and interchanges
- relate cost estimates to the different construction phasing scenarios
- indicate benefits associated with phasing strategy (i.e. L.O.S.)

8. Reports

- define the optimum access controlled highway corridor
- draft Executive Summary Report
- submit approved Executive Summary Report
- draft Final Report
- submit approved Final Report

4.3 Schedule

The following page is a schedule which we will use to keep the project on time.


SCHEDULE – PHASE I FUNCTIONAL PLANNING STUDY
ROUTE 11 JANEVILLE TO TRACADIE
Sept 1991
Oct
Nov
Dec 1991
Jan 1992
Feb
Mar
9 16 23 30 7 14 21 28 4 11 18 25 2 9 16 23 30 6 13 20 27 3 10 17 24 2 9 16 23
1. SET-UP
2. ASSESSMENT OF EXISTING HIGHWAY NETWORK
3. MEETINGS & CONSULTATIONS
4. ENVIRONMENTAL CONSIDERATIONS
5. IDENTIFICATION OF CORRIDOR OPTIONS
6. EVALUATION OF POTENTIAL ALTERNATIVES
7. ASSESSMENT & COST
8. REPORTS

(X) INDICATES MEETING WITH N.B.D.O.T. TECHNICAL STEERING COMMITTEE

(Sept. 26,1991)

5.0 **COST**

The total cost for this study is estimated at $128,350.00 excluding G.S.T. The following is a breakdown of costs according to the activities identified:

Professional costs have been calculated on a time basis in accordance with the "Engineering Consultant Services and Fees - General Conditions" dated April 1, 1988.

		M.D. x Rate	Total
1.	Set-up		
	Project Engineer	5 x 580 = 2 900	
	Engineer	2 x 420 = 840	
	Technician	5 x 320 = 1 600	
	Draftsman	10 x 200 = 2 000	
	Cartographer	10 x 250 = 2 500	
	Expenditures	1 010	
		10 850	10 850
2.	Assessment of Existing Highway Network		
	Project Engineer	8 x 580 = 4 640	
	Engineer	8 x 420 = 3 360	
	Technician	7 x 320 = 2 240	
	Draftsman	4 x 200 = 800	
	Cartographer	2 x 250 = 500	
	Secretary	1 x 290 = 290	
	Expenditures	250	
		12 080	12 080
3.	Meetings and Consultations		
	Principal	7 x 760 = 5 320	
	Project Engineer	9 x 580 = 5 220	
	Engineer	4 x 420 = 1 680	
	Environmentalist	5 x 580 = 2 980	
	Technician	2 x 320 = 640	
	Secretary	1 x 290 = 290	
	Expenditures	2 520	
		18 570	18 570

		M.D. x Rate	Total
4.	Environmental Considerations		
	Project Engineer	8 x 580 = 4 640	
	Environmentalist	26 x 580 = 15 080	
	Technician	5 x 320 = 1 600	
	Secretary	1 x 290 = 290	
	Expenditures	1 100	
		22 710	22 710
5.	Identification of Corridor Options		
	Project Engineer	19 x 580 = 11 020	
	Engineer	18 x 420 = 7 560	
	Technician	44 x 320 = 14 080	
	Draftsman	32 x 200 = 6 400	
	Cartographer	16 x 250 = 4 000	
	Expenditures	890	
		43 950	43 950
6.	Evaluation of Potential Alternatives		
	Project Engineer	3 x 580 = 1 740	
	Engineer	3 x 420 = 1 260	
	Technician	3 x 320 = 960	
	Draftsman	2 x 200 = 400	
	Cartographer	2 x 250 = 500	
		4 860	4 860
7.	Assessment and Cost Estimate		
	Project Engineer	3 x 580 = 1 740	
	Engineer	3 x 420 = 1 260	
	Technician	3 x 320 = 960	
	Secretary	1 x 290 = 290	
		4 250	4 250
8.	Reports		
	Project Engineer	7 x 580 = 4 060	
	Engineer	4 x 420 = 1 680	
	Technician	5 x 320 = 1 600	
	Draftsman	5 x 200 = 1 000	
	Secretary	5 x 290 = 1 450	
	Expenditures	1 290	
		11 080	11 080
		Total Estimated Cost	$128 350

6.0 CURRICULUM VITAE

This section contains the curriculum vitae of:

- J.J. Roy, P.Eng.
- G.J. LaVigne, P.Eng.
- G. Dubé, P.Eng.
- A. Gregory, M. Sc.

C U R R I C U L U M V I T A E

ROY, Jean Jacques

Date of birth
1948 08 13

Languages
English & French

Specialty
President of Roy Consultants Ltd.
Professional Engineer

Education

1971
B. Sc. (Civil).
Université de Moncton.

Experience

1984 TO PRESENT
President, Roy Consultants Ltd.
Senior engineer in charge of projects, including:

Project manager for the development and construction of **Nepisiquit/Chaleur Regional Landfill.**

Technical appraisal of water pipeline **(St Kitts. West Indies)** for Canadian International Development Agency.

Project Manager for the **Acadian Peninsula** solid waste management plan.

Design and Installation of water and sewer systems for the **Municipalities of Bathurst. Beresford, Caraquet, Tracadie, Shippagan and Bas Caraquet.**

Design and installation of roads and storm sewers for various **municipalities and Department of Transportation.**

Studies of water supply systems. wells and water usage for **Bathurst and Caraquet.**

Coordinator for the **Chaleur Region sanitary landfill** site identification study.

Coordinator on design of arenas for **Newcastle and Neguac.**

Technical assistance in preparation of **City of Bathurst** Transportation Masterplan.

Design and construction of rail siding at **Port of Belledune.**

Design and construction of ice machines and freezer at **St Marie sur Mer.**

Coordinator for improvements to **Bas Caraquet Marine Service Centre and Shippagan Marina.**

Coordinator of the **Shippagan Industrial Park** land use study.

1976 TO 1984
Partner and member of board of directors of **W.H. Crandall & Asso. (Mgt.) Limited.** manager and senior project engineer responsable for North East New Brunswick including the following projects:

Project engineer for design and construction of water and sewer systems, including standpipe, wells, pumphouses lagoon for the **Town of Tracadie.**

C U R R I C U L U M V I T A E

ROY, Jean Jacques

Date of birth
1948 08 13

Languages
English & French

Specialty
President of Roy Consultants Ltd.
Professional Engineer

Town of Caraquet Sewage Treatment Plants.

Project coordinator for **Bas-Caraquet Industrial Park** Land Use Study.

Grand Falls Industrial Park Study.

Eel River Crossing, Construction of Town Hall.

Shippegan, Construction of Arena.

Caraquet, Salt water system study and renovations.

Assistant project coordinator for **Belledune Heavy Industrial District** Planning Study.

City of Bathurst, Project Manager for construction of:

Harbourview Boulevard: Landfill project.

St Peter Avenue: Realignement Coronation Park Ballfields.

St Peter Avenue to Vallée Lourdes: 14" watermain Harbourview Boulevard and Parking Lot Construction.

Village of Bas Caraquet: storm sewer, design and construction.

Town of Shippegan: Storm sewer, design and construction, Storm sewer, trunk line, Sanitary sewer trunk line, Watch supply line.

Town of Caraquet: Storm sewer, design and construction.

Design and construction **Chaleur Industrial Park.**

Design and construction of **Bas Caraquet Marine Service Centre.**

Caraquet Sewage Treatment Relocation, including lift stations, force mains, sewage lagoon.

Tracadie sewer system upgrading study, lift stations, force mains, sanitary sewer, sewage lagoon.

City of Bathurst, Project Engineer for:

Construction of **Dieppe** comprehensive sewer system.

Design and construction of **Dieppe** water line system.

1972 TO 1976
Project Engineer for:

Design and construction of roads for **Town of Dieppe.**
(Champlain Street and Kennedy Drive).

C U R R I C U L U M V I T A E

ROY, Jean Jacques

Date of birth
1948 08 13

Languages
English & French

Specialty
President of Roy Consultants Ltd.
Professional Engineer

Design and construction of sanitary sewer system and lagoon for **Village of St Antoine.**

Design of water and sewer system for **Village of St Joseph.**

Project Engineer for **Dieppe** Neighbourhood Improvement Program.

Design and construction of Champlain Street improvements for **Town of Dieppe.**

Project Engineer for design of water system for **Village of St-Antoine.**

Project Engineer for **St Antoine** sewer and lagoon and **Dieppe** roads, water and sewer.

Assistant Project Engineer for construction of floating dock facilities at **Autoport Ltd. Halifax. Nova Scotia.**

Assistant Project Co ordinator for **Grand Falls Industrial Park** Study.

Project Engineer for design and construction of outside services.
Champlain Place Ltd.

1972 TO 1976
Project Engineer responsable for preliminary studies for:

Cap Pelé (sewer and water).

St Antoine (sewer and water).

Dieppe (comprehensive sewer plan).

1971 TO 1972
Field supervisor, **Greater Shediac** Pollution Abatement Project.

Professional Membership

Association of Professional Engineers of New Brunswick (A.P.E.N.B.)
Canadian Engineering Institute.
Canadian Society of Civil Engineers.
Project Management Institute.
American Water Works Association.
Maritime Provinces Water and Wastewater Association.
New Brunswick Economic Council.
President Consulting Engineers of New Brunswick.
Vice-president A.P.E.N.B. (1984).
Councillor, A.P.E.N.B. (1982 1983).
Vice president North East Branch of A.P.E.N.B. 1981.
Secretary, Moncton Branch of A.P.E.N.B. (1974).
President Engineering student association, Université de Moncton (1971)
Member of the board of New Brunswick Economic Council.
Member of the board of Fondation du Centre de Ressourcement.
President of the board of C.P.D.J.

C U R R I C U L U M V I T A E

ROY, Jean Jacques

Date of birth
1948 08 13

Languages
English & French

Specialty
President of Roy Consultants Ltd.
Professional Engineer

Additional Information

1981
Presentation and human relations.
Dale Carnegie.

1979
Accounting,
Université de Moncton.

1976
Presentation technique,
Kyle Industrial Training.

1975
Project Management,
American Management and Research Institute.

1973
Critical Path Methods,
Atlantic Region Management Training Centre.

C U R R I C U L U M V I T A E

LAVIGNE, Gérald J.

Date of birth
1953 03 06

Languages
English & French

Specialty
Project Engineer (Civil)

Education

1971 TO 1976
Université de Moncton, Moncton, N.B.
Degree: B. Appl. Sc. (Civil Engineering).

Experience

1988 TO PRESENT
Roy Consultants Ltd., Bathurst, N.B.
Project Engineer for the following projects:

- Concentrate storage facilities at a smelter including rigid frame, conveyor gallery and railroad siding.
- Preliminary study for structural renovations to the Bathurst court house.
- Prepare estimates, drawings and specifications for dredging at the wharves for the Marine Service Centres, Shippagan and Bas-Caraquet, N.B..
- Prepare drawings for relocating truck loading facilities at the Shell Plant in Belledune, N.B..
- Installation of a 3 metre culvert and road repairs for the municipality of Bathurst, N.B..
- Loading wharf inspection for Public Works at Dalhousie, N.B. including load rating and preparing report and drawings.
- Structural design of part of the Turbine Hall for the Belledune, N.B. thermal plant for N.B. Power.
- Responsable for the planning of the Tracadie, N.B. by-pass for the Department of Highways including pre-design, drawings and estimates for the different alternatives.
- Miscellaneous structural works and studies.

SEPT. 1986 TO OCT. 1988
N.B. Community College, Bathurst, N.B.
Instructor, Civil Engineering Technology (1986/87) and transferred to Edmundston, N.B. (1987/88).
Courses taught at first year level: surveying, statics and strength of materials (structural). Courses taught at second year level: soil mechanics and foundations, building services, project management and scheduling, surveying and road design. Responsable for surveying, highways and soils laboratories in addition to the design project of a section of highway.

MARCH 1985 TO SEPT. 1986
Les Bois de l'Est du Québec (1986) Inc., Matane, Québec.
Regional Manager of sawmills producing cants.
Under the authority of the General Manager, assumed the responsibility for planning, organizing, managing and controlling the operations in the Gaspé North region, mainly: coordination of timber supply, transportation of cants and byproducts, cost and budget control and manpower.

C U R R I C U L U M V I T A E

LAVIGNE, Gérald J.

Date of birth
1953 03 06

Languages
English & French

Specialty
Project Engineer (Civil)

JUNE 1979 TO MARCH 1985
MacMillan Bloedel Ltd., Powell River, B.C.
Resident Senior Civil Design Engineer employed by a wood, pulp & paper mill of approximately 2,500 employees.

Duties:
Supervised technician and assistant mechanical engineer; developed engineering designs and related cost estimates; prepared bill of materials and application for special expenditures; checked calculations & design of others; supervised
contractors; supervised engineering projects and cost control; surveying; and represented the Engineering Department on a Safety Committee.

Experience includes:
Miscellaneous structural engineering (concrete, steel, timber), marine engineering (dredging, barlow elevators, repairs to wharves & piles), railroads (standard & narrow gauge), product transportation study, checking timber bridges, maintenance of wood stove tanks, revision to oil tank farm, repairs to hydro electric dams, river diversion system maintenance.

MAY 1976 TO MAY 1979
Iron Ore Company of Canada, Schefferville, Québec.
Design Engineer; Resident Civil Design Engineer (June 1978 to May 1979).

Duties:
Studied projects and prepare drawings, estimates and bill of materials; prepared plans and contracts for municipal works; supervised municipal and housing development contracts. Experience includes: miscellaneous structural engineering (timber, steel), municipal engineering (water and sewers, sidewalks, streets, landscaping, outdoor recreational facilities), housing developments, railroads (standard gauge, rail lines, yards), mine haulage roads, hydro electric dam flooding probability.

SUMMER 1973, 1974, 1975
Brunswick Mining & Smelting, Mining Division, Bathurst, N.B.
Instrumentman in charge of survey crew; survey and estimate volumes; calculations and update plans for underground mine and surface surveying; assist supervision of construction projects.

Professional Membership

Association of Professional Engineers of New Brunswick

C U R R I C U L U M V I T A E

LAVIGNE, Gérald J.

Date of birth
1953 03 06

Languages
English & French

Specialty
Project Engineer (Civil)

Additional Information

- University class president 1972/73, 1973/74.
- Vice President of Engineering Student Society 1974/75.
- Faculty Student Council 1974/75.
- Social Centre Committee 1974/75, 1975/76.
- Student National Congress Committee 1974/75, 1975/76.
- Area representative A.P.E.B.C. (Assoc. of Professional Engineers of B.C.), Vancouver Island Branch.
- Engineering Dept. Social Committee (Powell River, B.C.).
- Treasurer of parent committee for "programme cadre" (Education, Powell River, B.C.).
- President Home and School Association 1990/91 (Beresford, N.B.)

Continuing Education:

- Problem solving (Kepner Tregoe).
- Fundamentals of Supervision.
- The Engineer and the law.
- Engineering Project Management.
- West Coast Committee on Marine Barriers.
- Fire Prevention.
- Arc Welding.
- Time Management.
- Quality Education System.
- Instructional Courses (2 summers)
- Highway Pavement Management

C U R R I C U L U M V I T A E

DUBE, Gérald

Date of birth
1963 08 20

Languages
English & French

Specialty
Civil Engineer

Education

MAY 1989
Bachelor in civil engineering
Université de Moncton
Moncton, N.B.

Experience

MAY 1989 TO PRESENT
Roy Consultants Ltée, Bathurst, N.B.
Assistant engineer for projects in the following fields:
storage of petroleum products, municipal engineering, solid waste management.

The following is a partial list of projects that I worked on:

- in charge of preliminary studies for the municipalities of St-Léolin. Bertrand. Paquetville. Preliminary conception for water and sewage systems. Cost estimate and financial analyses;

- municipal engineering for the municipalities of Beresford, Bas-Caraquet and Bathurst. Surveying, inspection and coordination of roads construction and water and sewer systems;

- fuel storage for the Department of Supply & Services. Conception preparation of plans & specifications, coordination of work for replacement of oil fuel tanks;

- municipalities of Bathurst, Paquetville and Canada Ports Corporation. Design, preparation of plans and specifications, cost estimates for the extension of water & sewage systems, road repairs and fire protection systems;

- acadian Peninsula and Restigouche County, solid waste management. The preparation of reports pretaining to different methods of solid waste management, cost estimates. site selection and conceptual plans.

MARCH 1988 TO AUGUST 1988
Université de Moncton
Hydrogeology research assistant. Analyses of Ice jam of New Brunswick Rivers.
Analyses by computer of hydrometrical data and production of a prediction model.

MAY 1987 TO AUGUST 1987
Les Ateliers Arpins, Kedgwick, N.B.
National Research Council
Production and quality studies of wood cabinet and furniture manufacturing.

MAY 1986 TO AUGUST 1986,
MAY 1985 TO AUGUST 1985,
MAY 1982 TO AUGUST 1984
Deschênes Drilling St-Quentin. N.B.
Water well drilling assistant, water well salesman.

C U R R I C U L U M V I T A E

DUBE, Gérald

Date of birth
1963 08 20

Languages
English & French

Specialty
Civil Engineer

Professional Membership

Association of Professional Engineers of New Brunswick

Additional Information

1988/1989
President of **Université de Moncton Engineering Student Association**
Voiced the interest of future engineers to the different levels of administration

President of **Engineering week committee, Université de Moncton**

Category director, **Canadian Engineerinag Student Competititon**, U de Moncton

C U R R I C U L U M V I T A E

GREGORY, Alan

Date of birth
1951 06 01

Languages
English & French

Specialty
Hydrogeologist

Education

Bristol University
B.Sc. (Hons.) Geology, Bristol, England.

McGill University
M.Sc. Hydrogeology, McGill, Canada.

Additional:

Well Logging, S.S.C. Denver, U.S.A.
Explosives, Moncton College, Canada.
French Language, Memramcook Institute, Canada.

Experience

1990 - present
Roy Consultants Ltd
Manager of Environmental services and Fredericton office.

1986 1990
Hydra Limited. (President)
Providing consulting services in Water Resource Management Policy and Groundwater Conservation and Development.
Sessional Lecturer in Hydrogeology, Engineering Department, University of New Brunswick.
Manufacture and distribution of Ozone based water treatment system.

1980 1986
New Brunswick Department of the Environment.
Responsible for technical services and approvals relating to public water systems and Federal/Provincial water supply development projects. Supervised a two-year project to investigate regionalization of operation and management of municipal water systems. Initiated staff training programs operation manuals for small municipal waterworks. Developed land use management strategy and provincial regulations for protection of watershed and recharge areas. Initiated and supervised digital watershed mapping and land use inventory program. Established municipal water system information bank. Initiated and supervised a drinking and water quality monitoring program. Established water source development and construction guidelines. Assisted in the development of a provincial groundwater monitoring network. Assisted in the review of all government water-related policy and programs for the Office of Government Reform. Assisted in the preparation of a position paper for the Inquire on Federal Water Policy. Provided technical input to environmental impact assessments, waste disposal studies and numerous government approval and coordinating bodies.

Watershed Protection Committee. Chairman
Dalhousie Water Supply Study, Co-chairman
Regulation Review Committee. Committee Member
North east Water Supply Committee.

C U R R I C U L U M V I T A E

GREGORY, Alan

Date of birth
1951 06 01

Languages
English & French

Specialty
Hydrogeologist

1977 1980
Atlantic Groundwater and Geophysics Ltd., Manager
Managed a consulting company to provide hydrogeological and geophysical services in the Maritimes. Carried out extensive slim hole geophysical logging for mineral exploration companies. Worked on groundwater investigations and water supply development projects for municipal, industrial and commercial clients.

1974 1977
James F. MacLaren Ltd.
Typical assignments involved groundwater exploration investigations, operation and analysis of seismic, resistivity and downhole geophysical surveys throughout eastern Canada. Responsible for the design, construction, supervision and testing of numerous municipal wells in bedrock and unconsolidated formations. Office and related field studies associated with environmental impact assessments for large scale construction projects and urban development activities. Assessment of groundwater problems associated with pollution control, oil spills, solid waste disposal, dewatering, and sub surface engineering projects.

1973 (Summer)
Iron Ore Company of Canada.
Assessment of mine dewatering problems in Northern Labrador including appraisal of climatic conditions, surface drainage, and sub surface water regime.

Reports and publications:

Fish Farm Site Identification and Testing, Hydra Limited, 1989.

Water Supply Upgrading, Minto Industrial Park, Hydra Limited, 1989.

Report on Testing and Construction Well 5, Shediac, Hydra Limited, 1989.

Water supply potential Caraquet/Bas Caraquet Hydra Limited, 1988.

Inventory and Review of Municipal Groundwater Supply Areas (3 Volumes), Hydra Limited, 1988.

Water Supply System Review, Town of Shediac, Hydra Limited, 1987.

Report on Water Supply Protection, Village of Doaktown. Hydra Limited, 1987.

Report on the Designation and Protection of the Five Finger Brook Watershed, St. Quentin, Hydra Limited, 1987.

Report of the Designation and Protection of the Dennis Stream Watershed, St. Stephen, Hydra Limited, 1987.

Water Supply System Review, Town of Newcastle, Hydra Limited, 1987.

Report on the Designation and Protection of the Turtle Creek Watershed, Moncton, Hydra Limited, 1987.

Report on Water System Upgrading, Scoudouc Industrial Park, Hydra Limited, 1986.

GREGORY, Alan

Date of birth
1951 06 01

Languages
English & French

Specialty
Hydrogeologist

Report on Production Well 4 Completion and Testing, Town of Shediac, Hydra Limited. 1986.

Cooperation in Water Management (with W.F.G. Cardy) Canadian Water Resources Association, 1986.

Report on the Watershed Protection Regulation Committee, Environment New Brunswick, 1983.

Chemistry of Municipal Water Supplies in New Brunswick, Environment New Brunswick, 1982.

Report of the Public Water Supply Management Project, Environment New Brunswick, 1981.

Manual of Operations for Public Water Systems, Environment New Brunswick, 1981.

Pollution Hazards to Water Resources, Gloucester County, Environment New Brunswick. 1980.

Report on Groundwater Exploration Program, Shediac, Atlantic Groundwater and Geophysics Ltd., 1980.

Report on Well Construction, Shediac, Atlantic Groundwater and Geophysics Ltd. 1980.

Report on Shippagan Salt Water Wells, Atlantic Groundwater and Geophysics Ltd., 1979.

Report on Well Repair and Testing, Nackawic, Atlantic Groundwater and Geophysics Ltd., 1979.

Report on Contaminated Well, Hunter River, Atlantic Groundwater and Geophysics Ltd., 1979

Report on Testing Town Well 1, Shediac, Atlantic Groundwater and Geophysics Ltd., 1978.

Report on Pump Testing, St. Antoine, Atlantic Groundwater and Geophysics Ltd., 1978.

Report on Water Supply Investigations, Lameque, Atlantic Groudwater and Geophysics Ltd., 1978.

Report on Salt Water Availability, Petit Rocher, Atlantic Groundwater and Geophysics Ltd., 1978.

Supplementary Groundwater Testing, Petit Rocher, Atlantic Groundwater and Geophysics Ltd., 1978.

Report on Well Testing, Moosehead Breweries Ltd., Atlantic Groundwater and Geophysics Ltd., 1978.

Water System Expansion, Georgia Pacific Ltd., Atlantic Groundwater and Geophysics Ltd., 1977.

GREGORY, Alan

Date of birth
1951 06 01

Languages
English & French

Specialty
Hydrogeologist

Report on Well Testing, Mountain View Estates, Atlantic Groundwater and Geophysics Ltd., 1977.

Report on Woodstock Road Well, Fredericton, Atlantic Groundwater and Geophysics Ltd., 1977.

Report on Well Testing, Applewood Estates, Atlantic Groundwater and Geophysics Ltd., 1977.

Water System Review, Town of Shediac, Atlantic Groundwater and Geophysics Ltd., 1977.

Construction Water Report, Lepreau Power Station, MacLaren Atlantic Ltd. 1977.

Testing Existing Water Sources. St. Joseph, MacLaren Atlantic Ltd., 1976.

Construction and Testing of Standby Well, St. Joseph, MacLaren Atlantic Ltd., 1976.

Construction and Testing of Production Well. Sussex, MacLaren Atlantic Ltd., 1976.

Construction and Testing of Standby Well, Lamèque, MacLaren Atlantic Ltd., 1976.

Report on Geophysical Investigation, Grafton. MacLaren Atlantic Ltd., 1976.

Report on Groundwater Investigations, Nigadoo. MacLaren Atlantic Ltd., 1976.

Report on Groundwater Investigations, Petit Rocher, MacLaren Atlantic Ltd., 1976.

Report on Seismic and Resistivity Study,Fredericton, MacLaren Atlantic Ltd., 1976.

Mine Dewatering Potential in Labrador, Canada.
Dewatering System Design and Long term Management with regard to Economic, Geologic and Climatic Constraints.

M.Sc. Thesis, 1976, McGill University, Montréal.